

## Highway Operations Summary Highlights

	No-Action	Four Lane	Six Lane	Eight Lane
<b>Traffic Volumes</b>	<ul style="list-style-type: none"> <li>Existing bottlenecks constrain WB peak hour traffic to 4200 vph (compared to</li> <li>Slight improvement for EB peak period (about 100 additional vehicles per hour)</li> </ul>	<ul style="list-style-type: none"> <li>Minor improvement over No-Action for typical operations</li> </ul>	<ul style="list-style-type: none"> <li>Slight increase in total traffic served over No-Action (200 vph)</li> <li>Additional traffic served would be primarily HOV</li> </ul>	<ul style="list-style-type: none"> <li>Would serve ½ lane worth of additional traffic (1200 vph)</li> </ul>
<b>Travel Time</b>	<ul style="list-style-type: none"> <li>Travel time nearly doubles compared to existing (about 50 minute travel time)</li> <li>HOV travel time up to 36 minutes</li> </ul>	<ul style="list-style-type: none"> <li>Travel times would be improved over No-Action due to full design standards</li> </ul>	<ul style="list-style-type: none"> <li>GP travel times experience significant improvement due to full standard design (about 17 minute travel time)</li> <li>Relocation of HOV to center (about 10 minute travel time)</li> </ul>	<ul style="list-style-type: none"> <li>GP Travel times would be slightly better than the six lane alternative (about 13 minute travel time)</li> <li>HOV travel times same as six lane</li> </ul>
<b>Congestion</b>	<ul style="list-style-type: none"> <li>Severe congestion would occur throughout the peak periods (4 – 4.5+ hours of congestion)</li> <li>Heavily congested areas would include: I-405 interchange area; 84<sup>th</sup> Ave NE interchange area WB; Lake Washington Blvd area EB; and I-5 interchange area</li> </ul>	<ul style="list-style-type: none"> <li>Similar congestion periods would occur as shown for No-Action</li> </ul>	<ul style="list-style-type: none"> <li>Significant improvements for the EB direction over No-Action (up to 4+ hours of congestion with fewer locations)</li> <li>Congestion would occur primarily on WB SR520 between Montlake and I-5 and EB at the corridor terminus</li> </ul>	<ul style="list-style-type: none"> <li>Significant improvements for congestion in both directions (congestion would occur for 2 – 3.5 hours)</li> </ul>

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	No-Action	Four Lane	Six Lane	Eight Lane
<b>Congestion(cont)</b>	<ul style="list-style-type: none"> <li>HOV lanes would operate with severe congestion due to GP lane capacity constraints (stop and go near I-405 approaching floating bridge westbound)</li> </ul>	<ul style="list-style-type: none"> <li>Benefits would be recognized in the event of an incident</li> </ul>	<ul style="list-style-type: none"> <li>WB direction shows moderate improvements over No-Action (fewer locations and shorter duration)</li> <li>HOV would operate uncongested</li> </ul>	<ul style="list-style-type: none"> <li>Congestion would occur WB near the I-5/Montlake interchange</li> </ul>
<b>I-5 Impacts</b>	<ul style="list-style-type: none"> <li>SB I-5 congestion near the NE 45<sup>th</sup> Street interchange worsens from existing conditions (due to weaving)</li> <li>NB I-5 congestion south of the convention center express lane connection worsens from existing condition (congestion cause by complex weaving area)</li> </ul>	<ul style="list-style-type: none"> <li>No change to I-5 congestion with relative to No-Action</li> </ul>	<ul style="list-style-type: none"> <li>No adverse affects to I-5 mainline or express lane operations identified</li> <li>Further study into the routing of transit and HOV vehicles into downtown Seattle is required</li> </ul>	<ul style="list-style-type: none"> <li>No adverse affects to SB I-5 mainline or express lane operations identified</li> <li>NB I-5 requires further study to determine the effectiveness of a right side Mercer on-ramp and impacts to the Lakeview off-ramp</li> <li>Further study into the routing of transit and HOV vehicles into downtown Seattle would be required</li> </ul>



## **Trans-Lake Washington Project**

Washington State  
Department of Transportation  
Sound Transit

# **I-405 / SR 520 Interchange Alternative Descriptions**

### **Option H:**

- Standard system ramps
- ½ diamond to W at 124<sup>th</sup>
- ½ diamond to N at 115<sup>th</sup>
- SB off-ramp to NE 8<sup>th</sup> braided with SR 520 system ramps
- No local access from system ramps
- WS / NE HOV direct access

### **Option F:**

- Standard system ramps
- ½ diamond to W at 116<sup>th</sup>
- ½ diamond to E at 124<sup>th</sup>
- ½ diamond to N at Northup
- Local access ramps to NE 8<sup>th</sup> & NE 10<sup>th</sup> w/ system ramp connections
- NW System ramp connection to Bellevue Way
- WS / NE and EN / SW HOV direct access

### **Option G:**

- Standard system ramps
- Offset diamond at 120<sup>th</sup>
- ½ diamond to N at Northup
- Local access ramps to NE 8<sup>th</sup> & NE 10<sup>th</sup> w/ system ramp connections
- NW System ramp connection to Bellevue Way
- WS / NE,  
EN / SW, and  
ES / NW HOV direct access

## Westside Local Traffic Assessment Highlights

	<b>SR 520/Montlake Blvd./Lake Washington Blvd. Interchanges</b>	<b>SR 520-I-5 w/ Eastlake Tunnel</b>	<b>SR 520- I/5 I/C w/ Weaves Reduced</b>
<b>Safety and Preservation (4 Lane)</b>	Little difference between No Action and Safety/Preservation alternative at the local street level.	No Change from No Action.	No Change from No Action.
<b>6 Lane</b>	<ul style="list-style-type: none"> <li>Montlake Blvd./Lake Washington Blvd. intersection would become extremely congested if Lake Washington Blvd. ramps are removed.</li> <li>A new crossing of the Montlake cut would improve operations on Montlake Blvd.</li> </ul>	<ul style="list-style-type: none"> <li>Some congestion increase at Mercer/Fairview.</li> <li>Added lanes would mitigate impact.</li> </ul>	<ul style="list-style-type: none"> <li>Some congestion increase at Stewart/Denny.</li> <li>Some congestion increase at Mercer/Fairview and Fairview/Valley.</li> <li>Options including braiding, relocation, or removal may be needed at the Boylston, Harvard, and Lakeview ramps.</li> </ul>
<b>8 Lane</b>	<ul style="list-style-type: none"> <li>Widening of Montlake Blvd. is needed if a new crossing of the Montlake cut is not provided or is designated for HOV use only.</li> <li>Conversely, congestion levels improve on Montlake Blvd. compared to No Build <u>with</u> a new crossing of the Montlake cut.</li> <li>With or without the new Montlake cut crossing, Montlake Blvd. would need to be widened to 6 lanes between Pacific St./Pacific Pl. and Sand Point Way/25<sup>th</sup> Ave. NE.</li> <li>Grade separation of the Montlake/Pacific is needed to accommodate added traffic from the new crossing.</li> </ul>	<ul style="list-style-type: none"> <li>Eastlake/Fairview tunnel connection improves congestion levels at Mercer/Fairview, but worsens congestion levels at Eastlake/Fairview and Fairview/Valley.</li> <li>Added lanes would mitigate impacts at Fairview/Valley.</li> <li>Grade-separation would likely be needed at Eastlake/Fairview with the new tunnel.</li> </ul>	<ul style="list-style-type: none"> <li>Some congestion increase at Stewart/Denny.</li> <li>Some congestion increase at Mercer/Fairview and Fairview/Valley. Intersection improvements are required to mitigate congestion.</li> <li>Ramps at Boylston, Harvard, and Lakeview require further study. Options may include braiding, relocation, or removal.</li> </ul>

## Eastside Local Traffic Assessment Highlights

	84 <sup>th</sup> /92 <sup>nd</sup> Ave NE	Bellevue Way/Lake Washington Blvd./108 <sup>th</sup> Ave. NE	Northup Way/124 <sup>th</sup> Ave. NE	148 <sup>th</sup> Ave. NE
<b>Safety and Preservation (4 Lane)</b>	No Change from No Action	No Change from No Action	No Change from No Action	No Change from No Action
<b>6 Lane</b>	<ul style="list-style-type: none"> <li>• Congestion worsens at Points Dr./84<sup>th</sup> Ave. intersection. Signalizing the intersection should be considered.</li> <li>• Congestion increase at 92<sup>nd</sup> Ave./SR 520 Eastbound off-ramp requires added turn lane on the ramp.</li> </ul>	<ul style="list-style-type: none"> <li>• An additional westbound left turn lane is needed at Lake Washington Blvd./Northup Way.</li> </ul>	<ul style="list-style-type: none"> <li>• Elimination of access from I-405 to the 124<sup>th</sup> Ave. NE ramps would add traffic to adjacent I-405 and SR-520 interchanges/arterials.</li> <li>• No improvement needed at 124<sup>th</sup> Ave. NE/Northup Way due to decrease in traffic.</li> </ul>	No Change from No Action
<b>8 Lane (East terminus at SR202/Redmond Wy)</b>	<ul style="list-style-type: none"> <li>• Congestion worsens at Points Dr./84<sup>th</sup> Ave. intersection. Signalizing the intersection should be considered.</li> <li>• Congestion increase at 92<sup>nd</sup> Ave./SR 520 eastbound off-ramp requires added turn lane on the ramp and a new traffic signal.</li> </ul>	<ul style="list-style-type: none"> <li>• Congestion worsens at Lake Washington Blvd./NE 38<sup>th</sup> Pl.; Mitigation to widen Lake Washington Blvd. north of the intersection should be considered.</li> <li>• A third westbound left turn lane at Lake Washington Blvd./Northup Way is needed to accommodate diverted traffic volumes from closing the 108<sup>th</sup> Ave. NE interchange.</li> </ul>	Same as 6 Lane above	<ul style="list-style-type: none"> <li>• Congestion worsens at the 148<sup>th</sup> Ave. NE/SR 520 eastbound ramps intersection requiring added turn lanes at the intersection.</li> </ul>

## Eastside Local Traffic Assessment Highlights (Continued)

	<b>NE 40<sup>th</sup>/51<sup>st</sup> St.</b>	<b>West Lake Sammamish Parkway</b>	<b>Redmond Way (SR 202) and Union Hill Road</b>
<b>Safety and Preservation (4 Lane)</b>	No Change from No Action	No Change from No Action	No Change from No Action
<b>6 Lane</b>	No Change from No Action	No Change from No Action	No Change from No Action
<b>8 Lane (East terminus at SR202/Redmond Wy)</b>	<ul style="list-style-type: none"> <li>• Congestion worsens at NE 40<sup>th</sup> St./SR 520 eastbound ramps and NE 40<sup>th</sup> St./156<sup>th</sup> Ave NE requiring added turn lanes at both intersections.</li> <li>• No change from No Action at NE 51<sup>st</sup> interchange</li> </ul>	<ul style="list-style-type: none"> <li>• Congestion worsens at West Lake Sammamish Parkway/SR 520 westbound ramps/Leary Way requiring a reconfiguration of the eastbound off-ramp connection and added turn lanes at the intersection.</li> </ul>	<ul style="list-style-type: none"> <li>• Congestion worsens at Redmond Way/SR 520 westbound on-ramp and SR 520/Union Hill Rd. intersections requiring added lanes at both intersections.</li> </ul>



## **Noise Analysis Summary Current and Planned Work Through June 2002**

- **Existing (Baseline) Noise Measurements:** Monitoring will be performed at up to 90 locations in the SR-520 corridor to define baseline noise conditions. The plan includes 20 long-term (24-hour) locations and 70 short-term (15-30 minutes) locations. The monitoring is on-going and is expected to be completed by the end of November, weather permitting. We have monitored at several locations along SR-520 including the SR-520 – I-5 interchange, Montlake, Evergreen, 84<sup>th</sup> and east of I-405. Measured noise levels near the highway ranged from 65 to 72 dBA. For receivers located farther from the highway, noise levels reduce to the lower 60's and noise from local streets is an issue in many areas.
- **Existing Environment:** This task includes constructing and running a detailed model of the existing noise environment. Receiver locations will be selected based on the noise-monitoring program, currently underway, and additional community meetings. A detailed existing environment technical report will be prepared early in 2002. The contents will include land use in the area, existing noise conditions, method of analysis, and any identified noise impacts.
- **Community Meetings:** The noise team will be meeting with the communities for the purpose of providing community members, officials and other interested parties with results of the existing environment analysis. Presentations of the information in the existing environment report will be prepared in a format that can be easily understood by the community. The presentations will be divided into specific areas along the alignment and tailored to fit the local areas.
- **Preliminary Noise Mitigation/Design Options Analysis:** Technical memoranda will compare different types of noise mitigation and design options that could be considered for the Trans-Lake Project. These could include noise walls and depressed roadways. A preliminary analysis of the area near 84<sup>th</sup> Avenue is nearly completed. The analysis shows that mitigation in the form of noise walls may be as effective in reducing the noise impacts as a lidded highway. Several factors make the lids less effective in this area, including sound flanking from other parts of the highway, local access traffic on main arterial roads, and the area's general topography.

What we are learning so far is that, as a point of reference and given the same conditions, the benefit of a small lid would be, on average, less than 1 dBA better at reducing noise than mitigation with noise walls. Furthermore, a large (1300 foot) lid could only be expected to provide an extra 2 to 3 dBA reduction in noise level when compared to noise walls. For reference, the average human can barely detect a 3 dBA change in traffic noise.

The noise team will continue to work with the design team to arrive at a mitigation/design option strategy to reduce noise levels and impacts throughout the SR-520 corridor.



## Summary of TDM Element Evaluation Findings

A range of TDM strategies was analyzed as part of the evaluation of multimodal alternatives. The analysis assessed the likely benefits of potential TDM actions that could be focused on the corridor in conjunction with transit and highway improvements. The key findings:

- TDM will enhance but not replace other mobility actions in the corridor. The overall project and the region's long range plans already represent substantial steps to manage demand by:
  - Including major HOV and transit improvements in all expansion alternatives for SR 520.
  - Focusing most growth into major centers connected by multimodal corridors.
- Trans-Lake corridors have a much higher rate of work trips than other facilities in the region, confirming that commute trip-based strategies would be the most beneficial to the corridor.
- Seven areas make up the majority of trips and are the best targets for investment: Downtown Seattle, Kirkland/Totem Lake, Redmond/Overlake, Downtown Bellevue/Northwest Bellevue, Northwest Seattle, the University District, University District and East Central Seattle.
- Each of the build alternatives warrant a similar array of TDM strategies and receive similar benefits; they all serve the same travel markets and feature the same scale of HOV and transit improvements.
- The four lane alternatives would yield lower benefits because they would not improve HOV or transit facilities in the SR 520 corridor, a key part of any corridor program to increase transit and HOV use.
- TDM investments would support increased mobility in the corridor by encouraging more people to travel by alternative modes, but they are not expected to reduce traffic congestion.

### Proposed TDM Element For Action Alternatives

- *Overall Goal:* Reduce the rate of non-HOV use to 80% or less of all corridor trips, and encourage 20% or higher use of HOV, transit or other alternative modes.

### Recommendation 1: Expand Commute Trip Reduction Programs

Provide \$95 million to \$135 million overall through 2020 to implement expanded CTR programs to reduce the rate of non-HOV use for commute trips to 60% for CTR employers, and 70% for Non-CTR employers. Target investments for Downtown Seattle, Kirkland/Totem Lake, Redmond/Overlake, Downtown Bellevue/Northwest Bellevue, Northwest Seattle, University District, and East Central Seattle. Key pieces of the strategy:

- ***Recommendation 1A: Employer-Based Commute Trip Reduction.*** Provide services, incentives and subsidies for employers to implement trip reduction programs such as discounted transit passes, ride home free guarantees, and parking management programs (\$70 million to \$100 million of total).
- ***Recommendation 1B: Transportation Management Associations.*** Provide funding support



for Transportation Management Associations or other commute trip reduction service organizations in the seven target subareas (\$10 million to \$15 million of total).

- **Recommendation 1C: Vanpooling.** Provide resources to support a five-fold increase in the use of vanpooling in the corridor, or an estimated 450 vanpools, with funding for P&R leased lot programs (\$15 million to \$20 million of total).

### **Recommendation 2: Develop Public Information, Education & Promotion Programs**

Provide \$15 million to develop and promote information and assistance services to inform travelers about transportation issues, transit, rideshare and vanpool programs, and increase their awareness of alternative travel options. Consider privatized service providers.

### **Recommendation 3: Encourage TDM Supportive Land Use**

Provide \$20 million in competitive grant funding for projects in the target investment areas. Eligible projects would be proposed by other corridor parties, but would include transit oriented developments, local connectivity improvements and livable streets projects, including bicycle lanes, sidewalks or other pedestrian facilities.

### **Recommendation 4: Encourage Public/Private Initiatives**

Provide \$10 million in competitive grant funding for vehicle trip-reduction programs proposed by corridor jurisdictions, businesses or organizations. Eligible programs should feature expanded services and promotions to encourage transit and ridesharing, such as to major sporting and entertainment events and other special events. Another examples would be an area or business association proposing parking management, transit or rideshare incentive programs.

### **TOTAL TDM ELEMENT COSTS**

Commit at least \$140 million to \$180 million for funding the program through 2020, based on the overall travel demand predicted for the Trans-Lake corridor. Seek matching funding from other corridor parties.



## DRAFT MEMO

December 6, 2001

TO: Sound Transit Boardmembers and Directors

FROM: Barbara Gilliland, Program Manager

SUBJECT: Trans-Lake Transit Alternatives Recommendation

The Trans-Lake project is in a screening phase to define and select alternatives to be analyzed in a SR 520 EIS. In early 2002, the Trans-Lake Executive Committee, Sound Transit Board, and the Washington State Transportation Commission will need to select which transit alternatives to carry into the SR 520 EIS.

The Board may elect to retain the current Sound Transit Long-Range Vision, including rail in the I-90 corridor, or to examine greater levels of transit investment in the SR 520 corridor – enhanced bus service, a BRT/HOV system, and/or a SR 520 fixed guideway investment.

### **Recommendation**

Staff recommends that the Sound Transit Long-Range Vision be revised to add a BRT/HOV system to the SR 520 corridor. We recommend retaining I-90 as the corridor for a potential rail extension across Lake Washington.

### **Improved Trans-Lake bus operations should continue to be a priority**

In the near term improved bus service is the most cost-effective way to increase Trans-Lake transit ridership. Sound Transit currently operates three regional bus routes in the SR 520 corridor and two routes in the I-90 corridor. Service frequencies and hours of operation on these routes will be improved over the next five years with implementation of the Regional Express service plan.

Implementation of the I-90 two-way transit project would provide the first reliable two-way transit corridor across Lake Washington and help support the projected doubling of Trans-Lake transit ridership over the next 20 years. Adding a BRT/HOV lane to the SR 520 corridor across Lake Washington would also provide a substantial benefit to transit service. It would remove buses from general purpose congestion thereby lowering bus operating costs and provide a faster and more reliable commute for bus passengers.

### **Design the SR 520 HOV Lane for BRT Operation**

The SR 520 BRT/HOV lane should continue to include a 4' buffer to improve bus/HOV reliability. Such a buffer appears to offer the potential of shielding bus service from the effects of incidents and congestion in the general purpose lanes, at a lower cost and with less right-of-way than would be required for a barrier separated HOV lane. HOV direct access connections should be

studied at the University District, South Kirkland, I-405 and Overlake. Additionally, the design should continue to replace the function provided by the current flyer stops at Montlake, Evergreen Point, and Yarrow Point. The South Lake Union busway connection should not be advanced further due to the cost, impacts, and capacity constraints of the alternative. However, connections to/from the I-5 reversible express lanes should be included.

#### Long-term buses face capacity constraints in Seattle and University District

The Trans-Lake no-action alternative in 2020 approaches the estimated bus operating capacity for transit on downtown Seattle surface streets. To address long term Trans-Lake transit demand a higher capacity transit system than the BRT/HOV system will eventually be needed. Providing one rail and one bus corridor across the Lake would meet this need by providing substantial opportunities for bus restructuring on the Eastside.

#### I-90 remains the preferred crossing for a Trans-Lake rail line

An I-90 rail crossing of Lake Washington is preferable to an SR 520 crossing for several reasons:

- An I-90 rail line would provide better service within the Eastside, because rail lines from Kirkland and Redmond would travel through downtown Bellevue before crossing Lake Washington.
- An I-90 rail line has similar ridership to a SR 520 crossing with capital costs \$1.8 billion to \$2.3 billion lower.
- An I-90 rail line provides for better rail system operations through downtown Seattle by balancing high passenger demand from the north with the demand from the south and east.

The long-term capital costs of a SR 520 crossing are higher than an I-90 crossing because it requires building a new rail corridor between downtown Seattle and SR 520. A SR 520 rail line could not be merged with the Central Link line because the long-range ridership demand north of downtown Seattle is too high to accommodate both a future light rail extension into Snohomish County and an extension to the Eastside in the SR 520 corridor.

If light rail were extended across Lake Washington in the SR 520 corridor and the Central Line were extended north into Snohomish County, the combined volumes on these two lines would approach 14,000 passengers per hour in 2020. This demand could be accommodated in 2020 by running trains every 2 minutes through downtown Seattle using four car trains north of the University District. However, with this operations pattern, there would be very little capacity for growth beyond 2020, because trains would already be operating at their maximum length and frequency.

Concerns have been raised over the last year few years about the feasibility of converting the I-90 center roadway to light rail. These concerns have included questions about the structural ability of the I-90 floating bridge to support light rail and questions about the traffic impacts of converting the center roadway to transit usage. To address these concerns the Trans-Lake project conducted additional analysis this summer and concluded that:

- The Homer Hadley bridge can structurally accommodate LRT with modest strengthening measures
- The traffic impacts of placing LRT in the I-90 center lanes are much less severe than identified in previous Trans-Lake analysis due to the addition of an HOV lane to the outer roadway
- In a worst case scenario, the cost of building a light rail only bridge in the I-90 corridor appears to be less than the cost of a new rail corridor between downtown Seattle and SR 520.

#### 520 HCT ROW Preservation

The question has also been raised as to whether two rail corridors would ever be needed across Lake Washington. Demand analysis indicates that in 2020 with full implementation of the Sound Transit Long-Range Vision a rail line across Lake Washington would carry approximately 4,500 passengers per hour in the peak direction. The capacity of a rail line in the I-90 corridor would be over 8,000 passengers per hour per direction. Thus, a single rail line across Lake Washington would well exceed projected demand and allow for substantial future growth.

Some Trans-Lake Executive Committee members have suggested that Trans-Lake is a 50-100 year decision and irrespective of the 2020 demand estimates the corridor should be design to accommodate a future transitway. A 50-100 year time period is beyond the range of reasonable technical analysis. However, to help support a discussion of this policy issue the Trans-Lake project team is now examining the EIS implications of preserving, accommodating or not precluding transit ROW in the SR 520 corridor.

Some preliminary staff discussion of this issue has raised issues with the number of alternatives likely to be needed in the EIS as well as legal questions about purchasing ROW for a future use. The project team will be prepared to provide information on what affect this issue has on the EIS and the project.



### Summary of Transportation Criteria Ratings

	Alt 1: No Action	Alt 2: S & P w/ I-90 LRT	Alt 3: HOV w/ I-90 LRT	Alt 4: HOV & GP w/I-90 LRT	Alt 5: HOV & 520 HCT	Alt 6: HOV & GP & 520 HCT	Alt 7: HOV/BRT	Alt 8: HOV/BRT & GP
Person Throughput	2	2	3	5	3	5	3	5
Vehicle Volumes	3	3	4	5	4	5	4	5
Mode Share	3	3	3	3	3	3	3	3
Transit Volumes	4	4	4	4	4	4	4	4
VHT/VMT	3	3	4	3	4	3	4	3
Travel Time	Not Rated							
Traffic Congestion (Regional)*	2	2	3	3	2	2	3	2
Traffic Congestion (Local)*	3	3	4	2	4	3	4	3
Travel Demand Reduction	3	4	4	2	4	2	4	2
Exclusive/Non Exclusive ROW	1	4	5	5	5	5	3	3
Safety	1	2	3	4	3	4	4	5
Travel Time Reliability	1	2	3	4	3	4	2	3
Incident Management	1	2	3	3	3	3	3	3
Compatibility (Regional/Local Trans. Plans & Projects)	1	1	4	4	4	3	4	3
System Continuity	1	2	5	4	4	4	2	2
Land Use/TDM Plan Compatibility	1	1	3	3	3	3	3	3

\* Preliminary Ratings. Additional Analysis is being conducted.

#### Rating Key

WORST				BEST	
1	2	3	4	5	
Least Effective	Low Effectiveness	Medium Effectiveness	Increased Effectiveness	Most Effective	

### 3.13 OVERALL COMPARATIVE SUMMARY

The following provides a comparative summary of the level of impacts for each alternative by environmental resources.

#### RATING SCALE

WORST			BEST	
1	2	3	4	5
Most Impacts	Medium Impacts	Least Impacts	No Impact	Improved Environment

#### Environmental Criteria Ratings Summary

Criteria	Alternative							
	1: No Action	2: S&P, I-90 LRT	3: HOV, I-90 LRT	4: HOV, GP, I-90 LRT	5: HOV, 520 HCT	6: HOV, GP, 520 HCT	7: HOV/BRT	8: HOV/ BRT, GP
Air Quality	3 least	3 least	3 least	2 medium	3 least	2 medium	3 least	1 most
Water Resources	3 least	2 medium	1 most	1 most	1 most	1 most	1 most	1 most
Fish-Bearing Streams	4 no	3 least	2 medium	2 medium	3 least	1 most	3 least	3 least
Critical Upland Habitat	3 least	2 medium	2 medium	1 most	2 medium	1 most	2 medium	1 most
Wetlands and Shorelines	4 no	2 medium	1 most	1 most	1 most	1 most	1 most	1 most
Noise and Vibration	3 least	3 least	2 medium	1 most	2 medium	1 most	2 medium	1 most
Land Use	4 no	3 least	3 least	2 medium	2 medium	1 most	3 least	2 medium
Parklands	4 no	3 least	2 medium	1 most	2 medium	1 most	3 least	2 medium
Cultural Resources	4 no	2 medium	1 most	1 most	3 least	2 medium	3 least	3 least
Displacements and Disruption	4 no	3 least	2 medium	2 medium	2 medium	1 most	2 medium	1 most
Neighborhoods	2 medium	3 least	3 least	1 most	3 least	1 most	3 least	2 medium
Visual Quality	4 no	1 most	1 most	1 most	2 medium	2 medium	3 least	3 least

